PUBLIC NOTICE

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INFORMATION SOUGHT ON METHODS FOR VERIFYING COMPLIANCE WITH E911 ACCURACY STANDARDS

Docket No. ET 99-300

The Office of Engineering and Technology (OET) and the Wireless Telecommunications Bureau (WTB) are seeking technical information on measuring the accuracy of Enhanced 911 (E911) systems for locating wireless callers. The technical information provided will be used to develop guidelines for test procedures for verifying compliance with E911 accuracy standards. Issues of special concern are identified below. We ask that interested parties respond to this request by October 29, 1999.

BACKGROUND

The FCC recently revised the accuracy and reliability standards for the Automatic Location Identification (ALI) that must be provided as part of a carrier's enhanced wireless 911 services. This action was taken in the Third Report and Order in CC Docket No. 94-102, *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling* Systems, FCC 99-245 (released Oct. 6, 1999). The revised standards will apply in Phase II of the E911 implementation. Phase II generally requires the application of ALI technology to handle wireless 911 calls.

The standards are as follows:

- For network-based solutions: 100 meters for 67 percent of calls, 300 meters for 95 percent of calls;
- For handset-based solutions: 50 meters for 67 percent of calls, 150 meters for 95 percent of calls.

In the Third Report and Order, the Commission tasked OET and WTB to expeditiously develop and publish methods that may be used for verifying compliance with these Rules. In developing appropriate verification standards, OET and WTB are to work with all interested parties and take into account practical and technical realities.

COMPLIANCE TESTING ISSUES

Major issues in the design of compliance testing procedures include the following:

Statistical Considerations

o How many measurements must be made within a carrier's service area to ensure statistical confidence?

o Should a test procedure include a precisely defined statistical model?

o What special statistical considerations, if any, should be introduced to handle "outliers" (*e.g.*, measurements made where no fix was obtained at all, or large errors in location suspected to be due to faulty test equipment)?

o What measurement precision should be required, *i.e.*, should the actual caller location be recorded with a precision allowing calculations to be made in fractions of a meter?

Choice of Measurement Locations

o Should a test procedure include the entire advertised coverage area of a wireless service provider? Should test locations be organized according to the respective responsibilities of public safety answering points (PSAPs)? And if a call cannot be completed at a particular test location, should that location be ignored?

o How should test locations be chosen?

-- Should test locations be picked in a purely random fashion? If so, should they be chosen by reference to a rectangular grid of cells? If so, should measurements be made at the intersecting points within the grid, or should a certain number of points be made within each cell (*e.g.*, in proportion to the carrier's current distribution of calls, 911 calls only)? In any case, how large should cells be?

-- Should test locations be picked by reference to irregularly bounded areas, such as the estimated coverage areas of individual base stations? If so, how far should test locations be from base stations and, especially for network-based systems, should tower configuration be a consideration in determining test locations (*e.g.*, test locations directly between two towers, equidistant between three towers, etc.)?

-- Should test locations be classified by the type of reception environment (on a sidewalk, in a vehicle, in a building, rural, urban, suburban, etc., or with reference to parameters of predictive ALI models)? How would such areas be precisely defined? What techniques are practical and appropriate to assure randomness, if needed?

-- Should tests be made on various floors of a building, *i.e*, should there be a vertical dimension to the test procedure?

o How should the test procedure recognize changes that occur over time in the test area, such as foliage changes and construction of new buildings?

Measurement Techniques

o Should there be a maximum time to obtain a location fix? If so, what criteria are appropriate for setting this time limit (*e.g.*, the typical time for call to be routed to a PSAP, some period of time *after* the call has been routed to the PSAP, etc.) and should such criteria vary for different test locations?

o For GPS-based systems, should some or all location attempts be made from phones that have not acquired a recent location fix (*i.e.*, a "cold start")?

o Should both portable and mobile phones be tested? If so, in what proportion? Should the test procedure specify how portable phones should be oriented, or how a mobile antenna should be mounted?

o Should some proportion of measurements of portable phones be made with phones in motion (*i.e.*, at walking speeds)? If mobile phone measurements are made, at what speeds should the mobile unit be moving?

o If a carrier provides both analog and digital service, should separate tests be prescribed for each mode? Should the accuracy and reliability standards apply separately to each mode, or should the test results be combined in some specific proportion?

o What techniques are available for determining the distance between the actual location and the measured location?

o Is there a need to develop a different test procedure for network vs. handset technologies?

o Should provisions be made for the use of predictive models of ALI systems, now or in the future? If so, what accuracy and reliability standards should be required of such models and how should they be tested?

o How should test data be presented and analyzed?

The issues and considerations identified herein are by no means exhaustive. On the other hand, not all of these issues may need to be addressed in order to set practical guidelines for obtaining meaningful results. We therefore ask for information on the elements that should be taken into account or incorporated into a test procedure.

SUBMISSION INSTRUCTIONS

In order for the Commission to develop a test procedure in a timely manner, we ask that responses to this request for information be submitted no later than October 29, 1999. This inquiry is exempt from the Commission's *ex parte* rules (*see* Sections 1.1 and 1.1204(b)(1) of the Commission's rules), but all information will be available to the public unless confidential treatment is sought and granted.

Responses may be submitted using the Commission's Electronic Comment Filing System (ECFS), or they may be forwarded by e-mail to reckert@fcc.gov (Robert Eckert, OET) with a copy to mliebman@fcc.gov (Marty Liebman, WTB).

To respond through the ECFS, send as an electronic file via the Internet to <http://www.fcc.gov/e-file/ecfs.html>. In completing the transmittal screen, parties responding should include their full name, Postal Service mailing address, and the applicable docket number, ET Docket No. 99-300.

When responding by e-mail, please include "ET Docket No. 99-300" in the subject line of the message header.

Copies of submissions may be obtained via the ECFS or through the Commission's copy contractor, International Transcription Service, Inc., 445 Twelfth Street, S.W.; CY-B402, Washington, D.C. 20554.

For further information, please contact either Robert Eckert, OET, (202) 418-2433 or Marty Liebman, WTB, (202) 418-0633.